FIG. 1

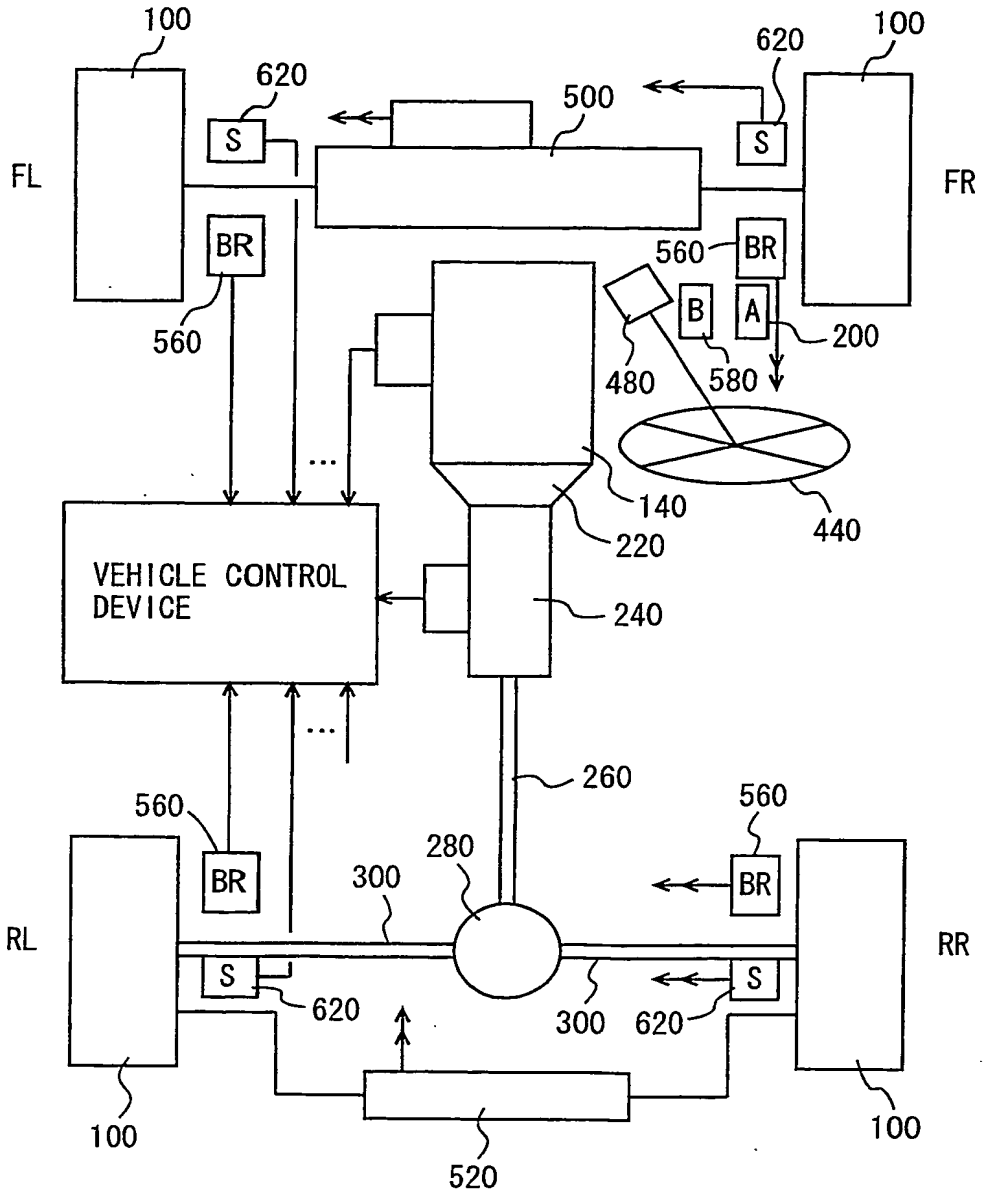

100
620
500
620
100
S
S
FL
FR
BR
560
BR
560
B
A
200
480
580
140
220
440
VEHICLE CONTROL DEVICE
240
260
560
560
280
300
BR
BR
RL
RR
S
S
620
300
620
100
100
520

FIG. 2

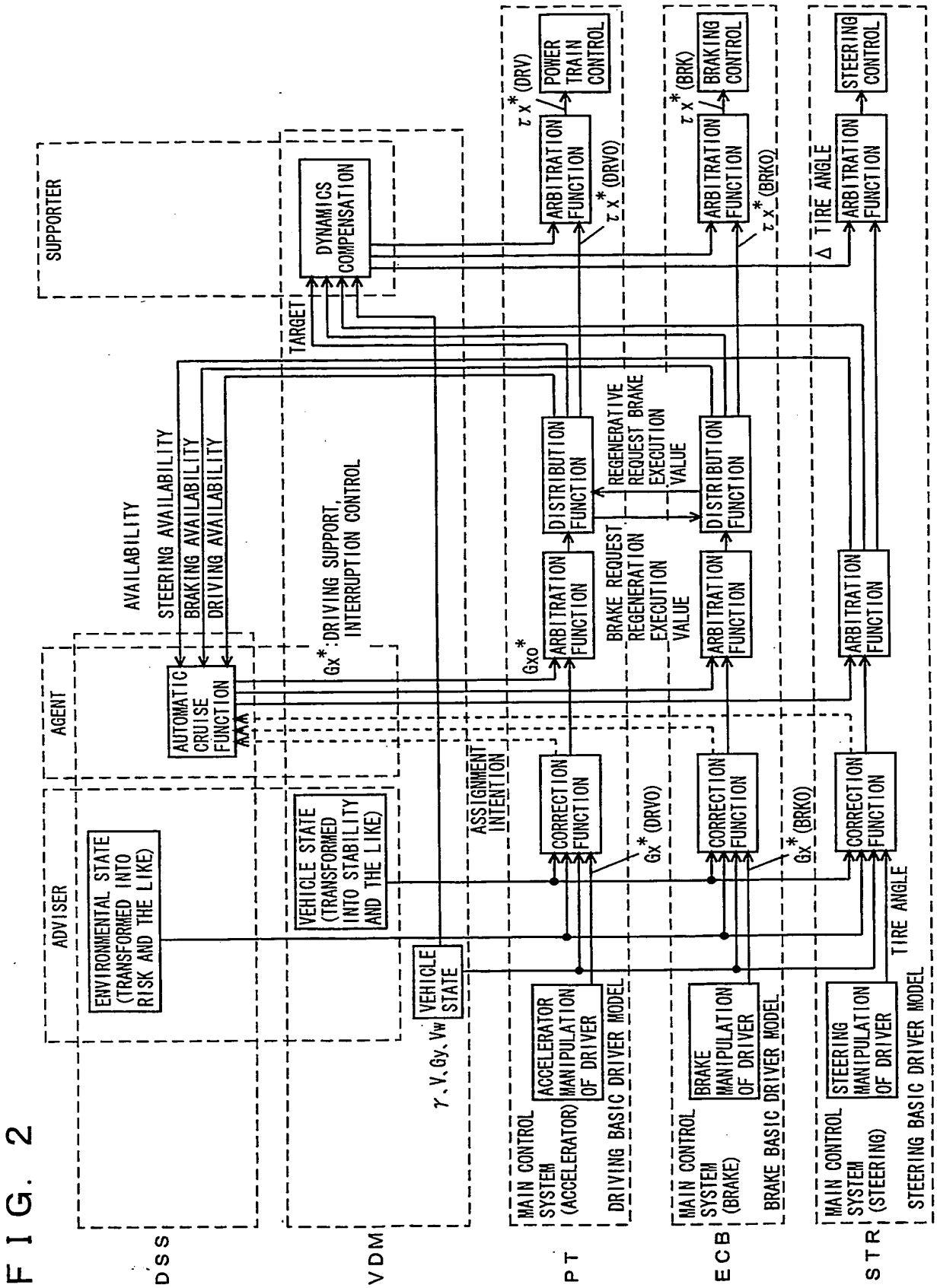

DSS
VDM
PT
ECB
STR
ADVISER
AGENT
SUPPORTER
ENVIRONMENTAL STATE (TRANSFORMED INTO RISK AND THE LIKE)
VEHICLE STATE (TRANSFORMED INTO STABILITY AND THE LIKE)
AUTOMATIC CRUISE FUNCTION
AVAILABILITY
STEERING AVAILABILITY
BRAKING AVAILABILITY
DRIVING AVAILABILITY
Gx*: DRIVING SUPPORT, INTERRUPTION CONTROL
TARGET
DYNAMICS COMPENSATION
ASSIGNMENT INTENTION
VEHICLE STATE
γ, V, Gy, Vw
ARBITRATION FUNCTION
DISTRIBUTION FUNCTION
Gxo*
BRAKE REQUEST REGENERATION EXECUTION VALUE
REGENERATIVE REQUEST BRAKE EXECUTION VALUE
CORRECTION FUNCTION
Gx* (DRVO)
Gx* (BRKO)
τx* (DRV)
τx* (DRVO)
τx* (BRK)
τx* (BRKO)
Δ TIRE ANGLE
TIRE ANGLE
POWER TRAIN CONTROL
BRAKING CONTROL
STEERING CONTROL
MAIN CONTROL SYSTEM (ACCELERATOR)
ACCELERATOR MANIPULATION OF DRIVER
DRIVING BASIC DRIVER MODEL
MAIN CONTROL SYSTEM (BRAKE)
BRAKE MANIPULATION OF DRIVER
BRAKE BASIC DRIVER MODEL
MAIN CONTROL SYSTEM (STEERING)
STEERING MANIPULATION OF DRIVER
STEERING BASIC DRIVER MODEL

FIG. 3

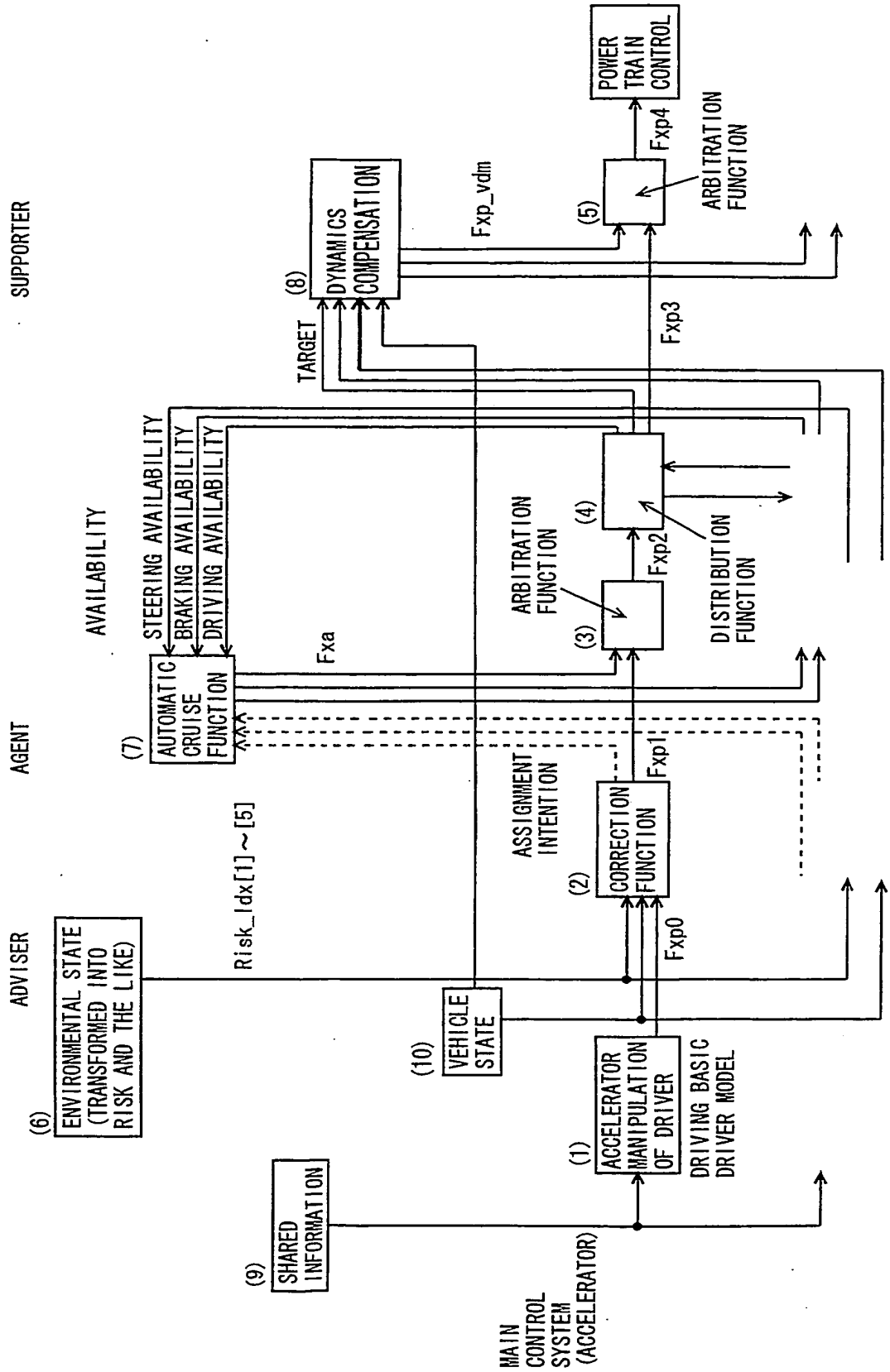

SUPPORTER
AVAILABILITY
AGENT
ADVISER
STEERING AVAILABILITY
BRAKING AVAILABILITY
DRIVING AVAILABILITY
(8) DYNAMICS COMPENSATION
TARGET
Fxp_vdm
POWER TRAIN CONTROL
Fxp4
(5)
ARBITRATION FUNCTION
Fxp3
(4)
Fxp2
DISTRIBUTION FUNCTION
ARBITRATION FUNCTION
(3)
Fxa
(7) AUTOMATIC CRUISE FUNCTION
ASSIGNMENT INTENTION
(2) CORRECTION FUNCTION
Fxp1
Fxp0
Risk_Idx[1]~[5]
(6) ENVIRONMENTAL STATE (TRANSFORMED INTO RISK AND THE LIKE)
(10) VEHICLE STATE
(1) ACCELERATOR MANIPULATION OF DRIVER
DRIVING BASIC DRIVER MODEL
(9) SHARED INFORMATION
MAIN CONTROL SYSTEM (ACCELERATOR)

FIG. 4

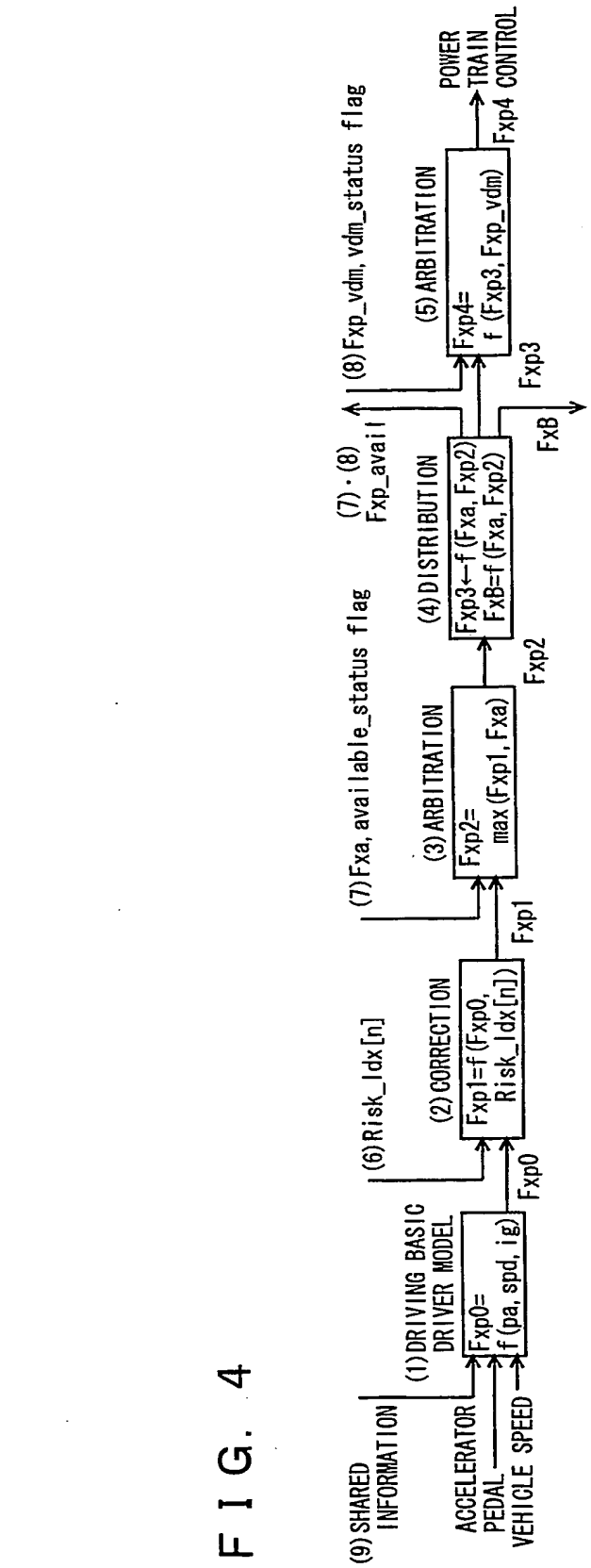

(9) SHARED INFORMATION
ACCELERATOR PEDAL
VEHICLE SPEED
(1) DRIVING BASIC DRIVER MODEL
Fxp0= f (pa, spd, ig)
Fxp0
(6) Risk_Idx[n]
(2) CORRECTION
Fxp1=f (Fxp0, Risk_Idx[n])
Fxp1
(7) Fxa, available_status flag
(3) ARBITRATION
Fxp2= max (Fxp1, Fxa)
Fxp2
(4) DISTRIBUTION
Fxp3←f (Fxa, Fxp2)
FxB=f (Fxa, Fxp2)
Fxp3
FxB
(7)・(8) Fxp_avail
(8) Fxp_vdm, vdm_status flag
(5) ARBITRATION
Fxp4= f (Fxp3, Fxp_vdm)
Fxp4
POWER TRAIN CONTROL

FIG. 5

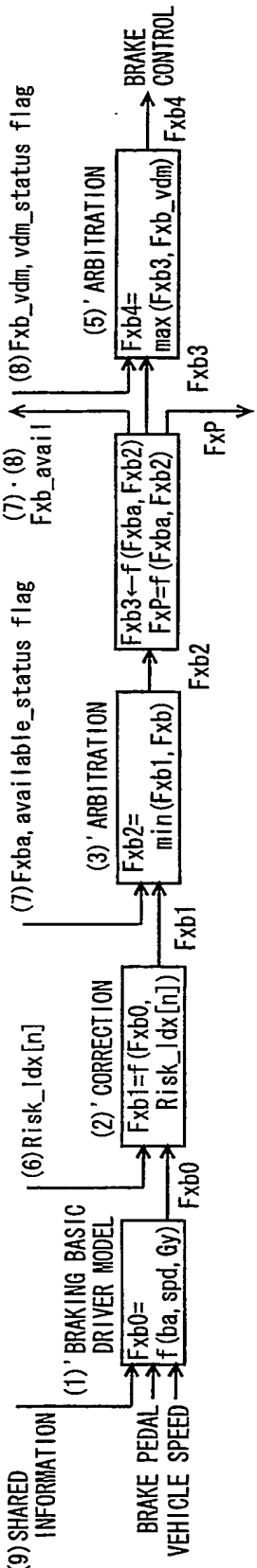

(9) SHARED INFORMATION
BRAKE PEDAL
VEHICLE SPEED
(1)' BRAKING BASIC DRIVER MODEL
Fxb0= f (ba, spd, Gy)
Fxb0
(6) Risk_Idx[n]
(2)' CORRECTION
Fxb1=f (Fxb0, Risk_Idx[n])
Fxb1
(7) Fxba, available_status flag
(3)' ARBITRATION
Fxb2= min(Fxb1, Fxb)
Fxb2
Fxb3←f (Fxba, Fxb2)
FxP=f (Fxba, Fxb2)
(7)・(8) Fxb_avail
(8) Fxb_vdm, vdm_status flag
(5)' ARBITRATION
Fxb4= max (Fxb3, Fxb_vdm)
Fxb3
FxP
Fxb4
BRAKE CONTROL

FIG. 6

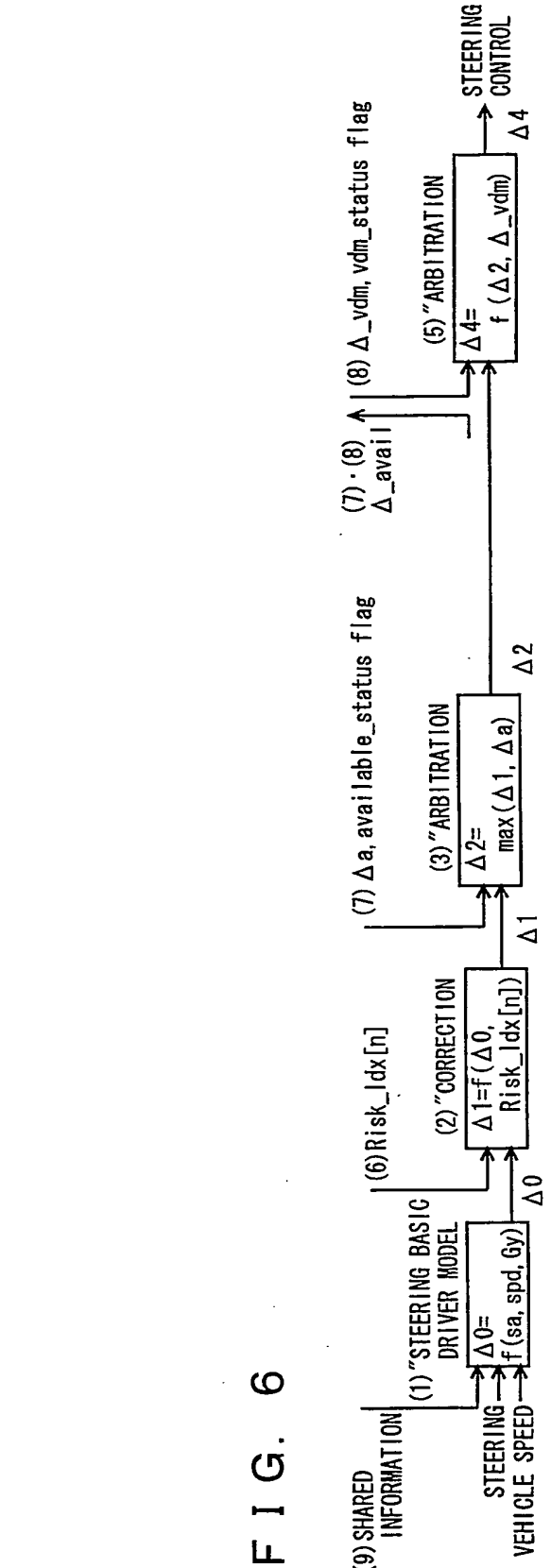

(9) SHARED INFORMATION
STEERING
VEHICLE SPEED
(1) "STEERING BASIC DRIVER MODEL
Δ0= f(sa, spd, Gy)
Δ0
(6) Risk_Idx[n]
(2) "CORRECTION
Δ1=f(Δ0, Risk_Idx[n])
Δ1
(7) Δa, available_status flag
(3) "ARBITRATION
Δ2= max(Δ1, Δa)
Δ2
(7)・(8) Δ_avail
(8) Δ_vdm, vdm_status flag
(5) "ARBITRATION
Δ4= f(Δ2, Δ_vdm)
Δ4
STEERING CONTROL

FIG. 7

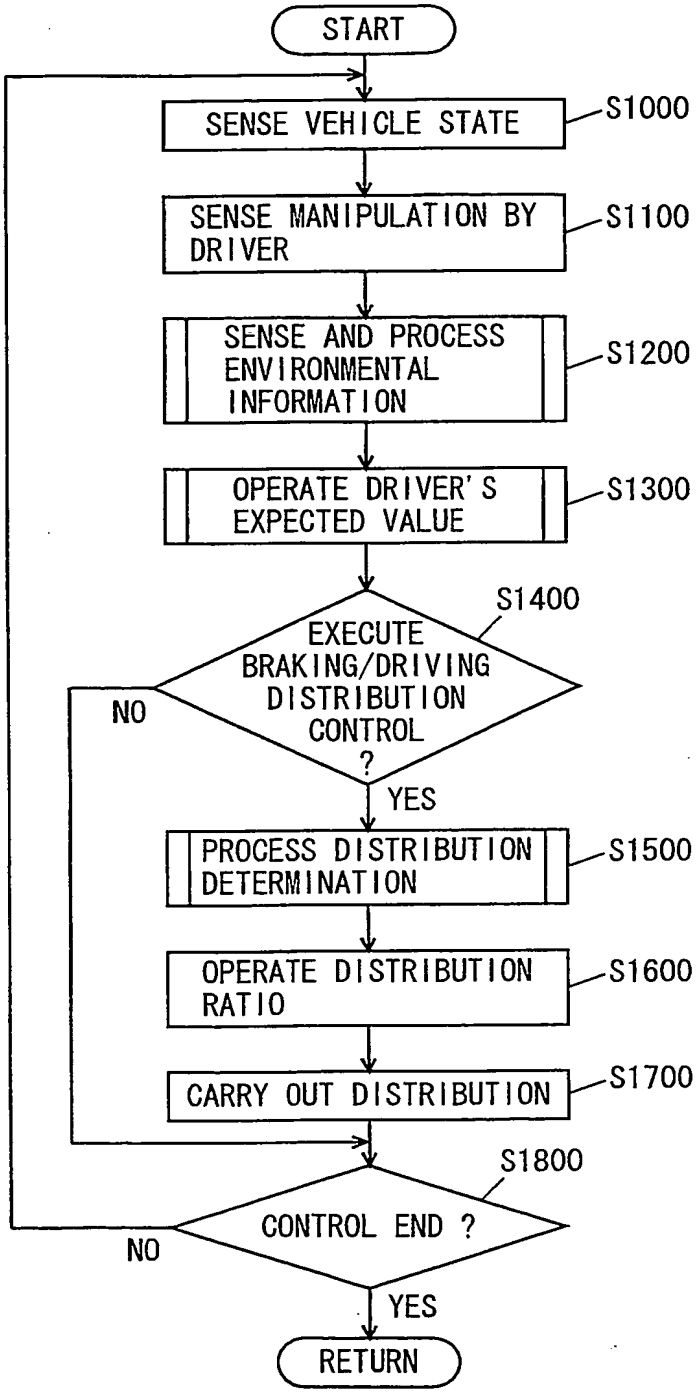

START
SENSE VEHICLE STATE
S1000
SENSE MANIPULATION BY DRIVER
S1100
SENSE AND PROCESS ENVIRONMENTAL INFORMATION
S1200
OPERATE DRIVER'S EXPECTED VALUE
S1300
S1400
EXECUTE BRAKING/DRIVING DISTRIBUTION CONTROL ?
NO
YES
PROCESS DISTRIBUTION DETERMINATION
S1500
OPERATE DISTRIBUTION RATIO
S1600
CARRY OUT DISTRIBUTION
S1700
S1800
CONTROL END ?
NO
YES
RETURN

FIG. 8

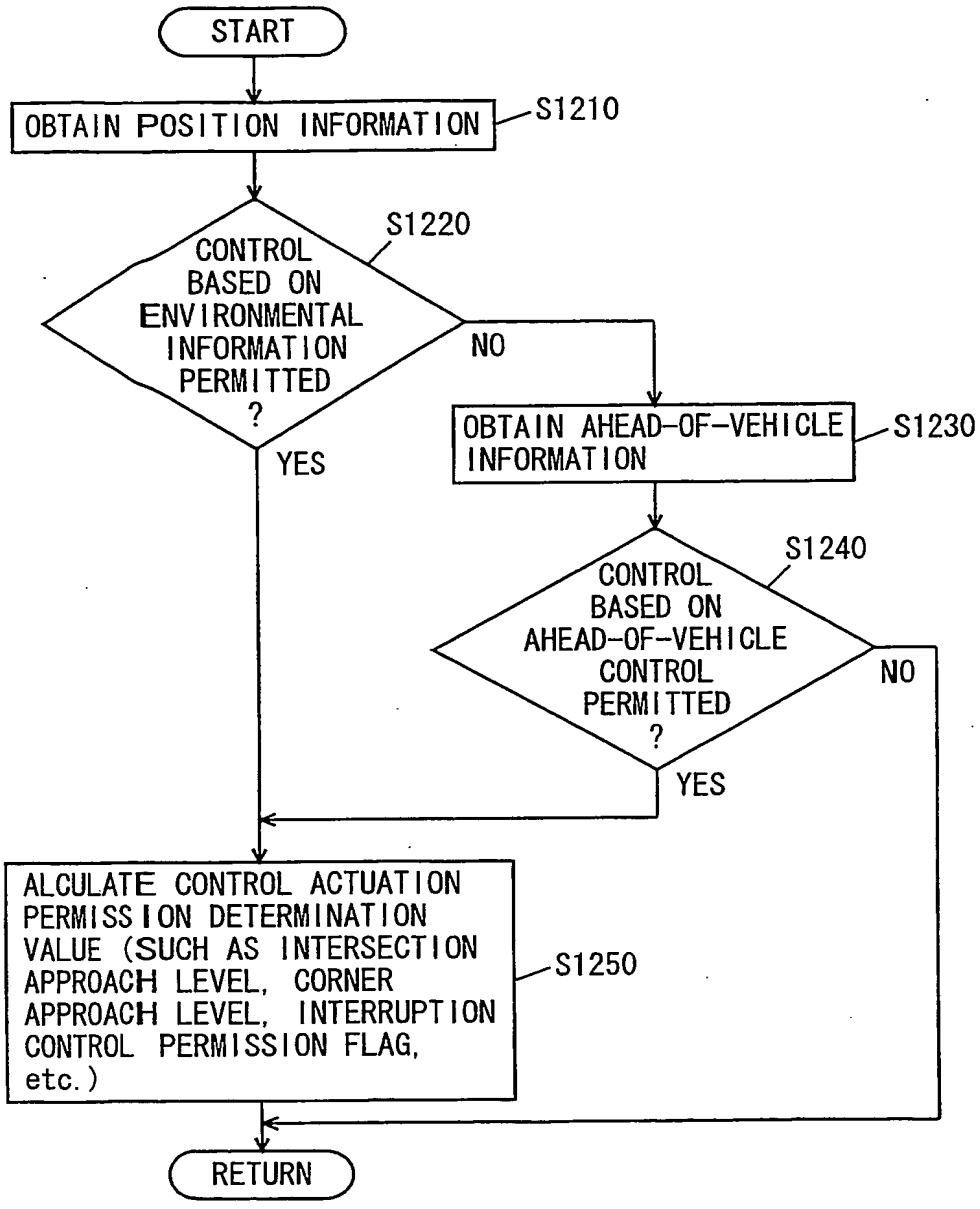

START
OBTAIN POSITION INFORMATION
S1210
CONTROL BASED ON ENVIRONMENTAL INFORMATION PERMITTED ?
S1220
NO
YES
OBTAIN AHEAD-OF-VEHICLE INFORMATION
S1230
CONTROL BASED ON AHEAD-OF-VEHICLE CONTROL PERMITTED ?
S1240
NO
YES
ALCULATE CONTROL ACTUATION PERMISSION DETERMINATION VALUE (SUCH AS INTERSECTION APPROACH LEVEL, CORNER APPROACH LEVEL, INTERRUPTION CONTROL PERMISSION FLAG, etc.)
S1250
RETURN

FIG. 9

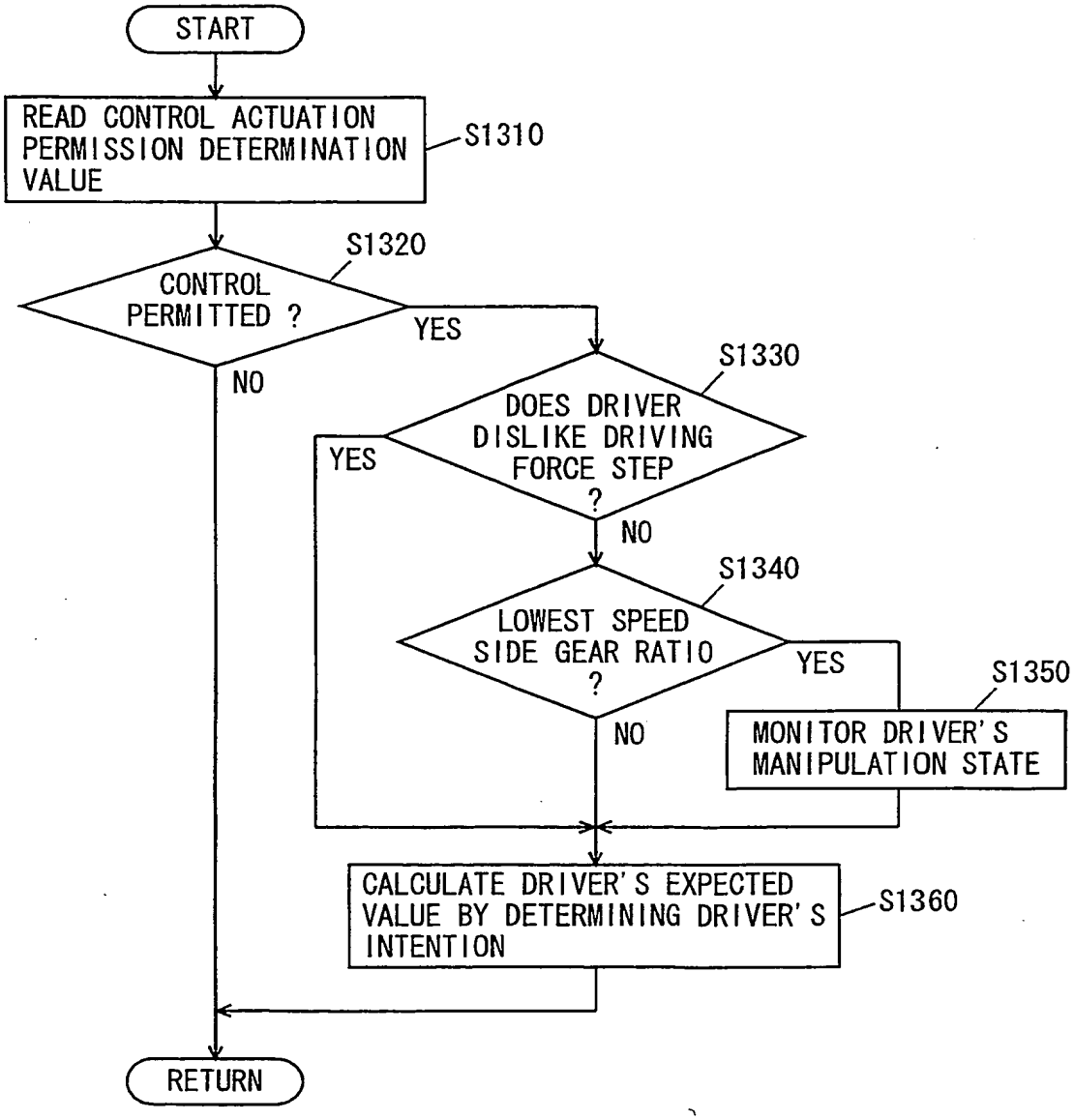
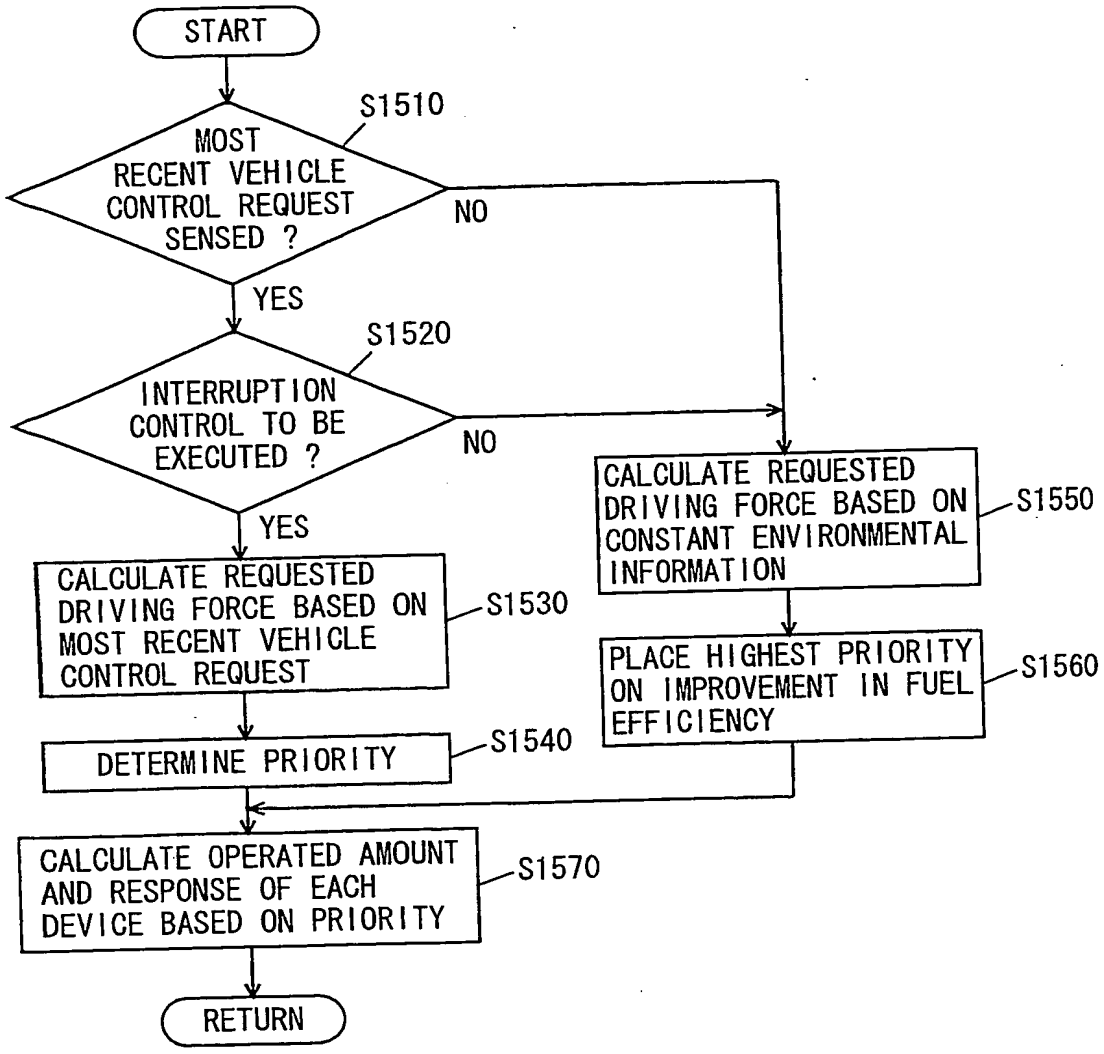

START
READ CONTROL ACTUATION PERMISSION DETERMINATION VALUE
S1310
S1320
CONTROL PERMITTED ?
YES
NO
S1330
DOES DRIVER DISLIKE DRIVING FORCE STEP ?
YES
NO
S1340
LOWEST SPEED SIDE GEAR RATIO ?
YES
NO
S1350
MONITOR DRIVER'S MANIPULATION STATE
CALCULATE DRIVER'S EXPECTED VALUE BY DETERMINING DRIVER'S INTENTION
S1360
RETURN

FIG. 10


START
S1510
MOST RECENT VEHICLE CONTROL REQUEST SENSED ?
NO
YES
S1520
INTERRUPTION CONTROL TO BE EXECUTED ?
NO
YES
CALCULATE REQUESTED DRIVING FORCE BASED ON MOST RECENT VEHICLE CONTROL REQUEST
S1530
CALCULATE REQUESTED DRIVING FORCE BASED ON CONSTANT ENVIRONMENTAL INFORMATION
S1550
PLACE HIGHEST PRIORITY ON IMPROVEMENT IN FUEL EFFICIENCY
S1560
DETERMINE PRIORITY
S1540
CALCULATE OPERATED AMOUNT AND RESPONSE OF EACH DEVICE BASED ON PRIORITY
S1570
RETURN